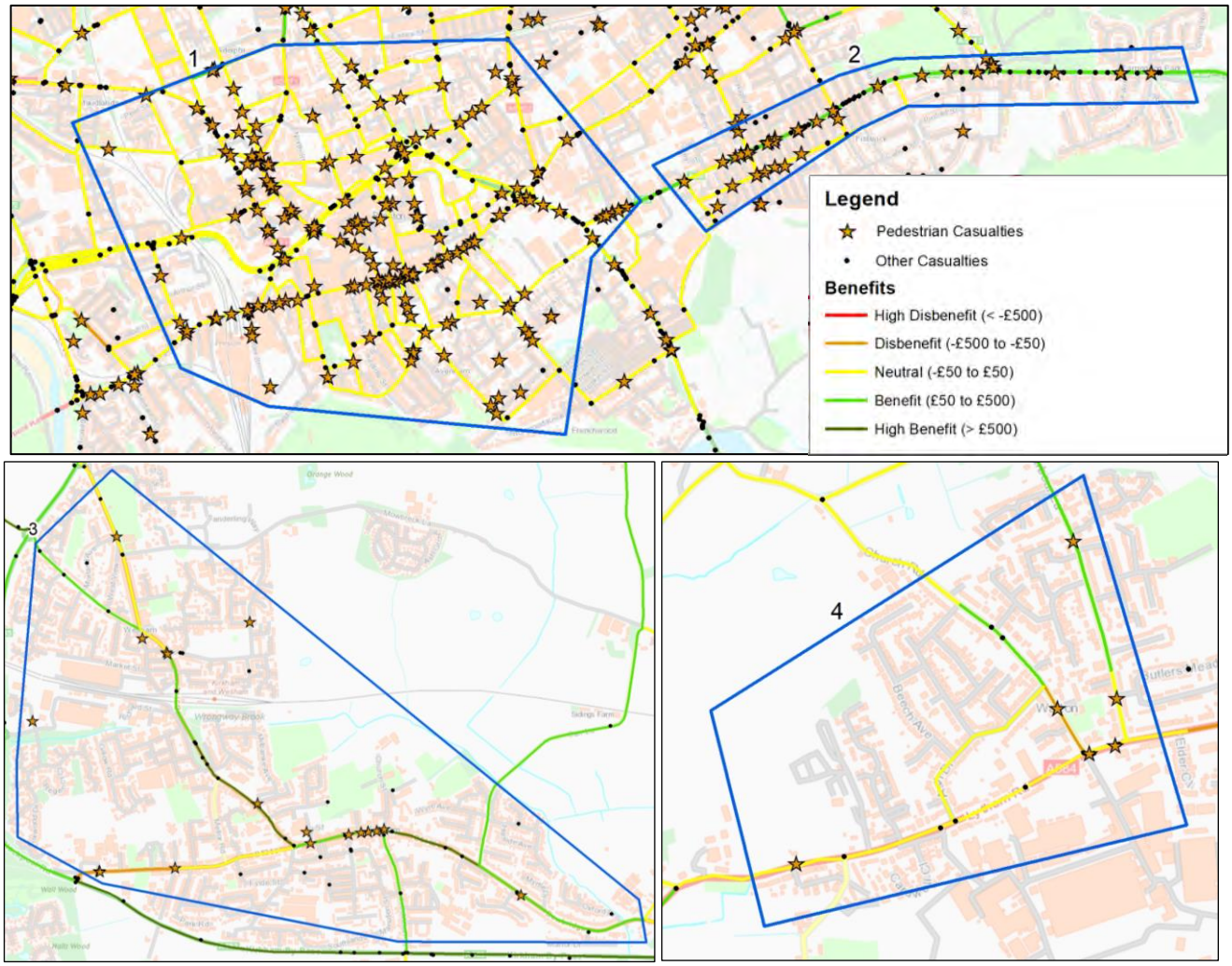

Figure 9-16: Pedestrian casualties in the identified clusters

9.5.5 Accident Impacts on Cyclists

Amenities attracting cyclists identified in Step 2 have been plotted in GIS together with casualties among cyclists (Figure 9-17):

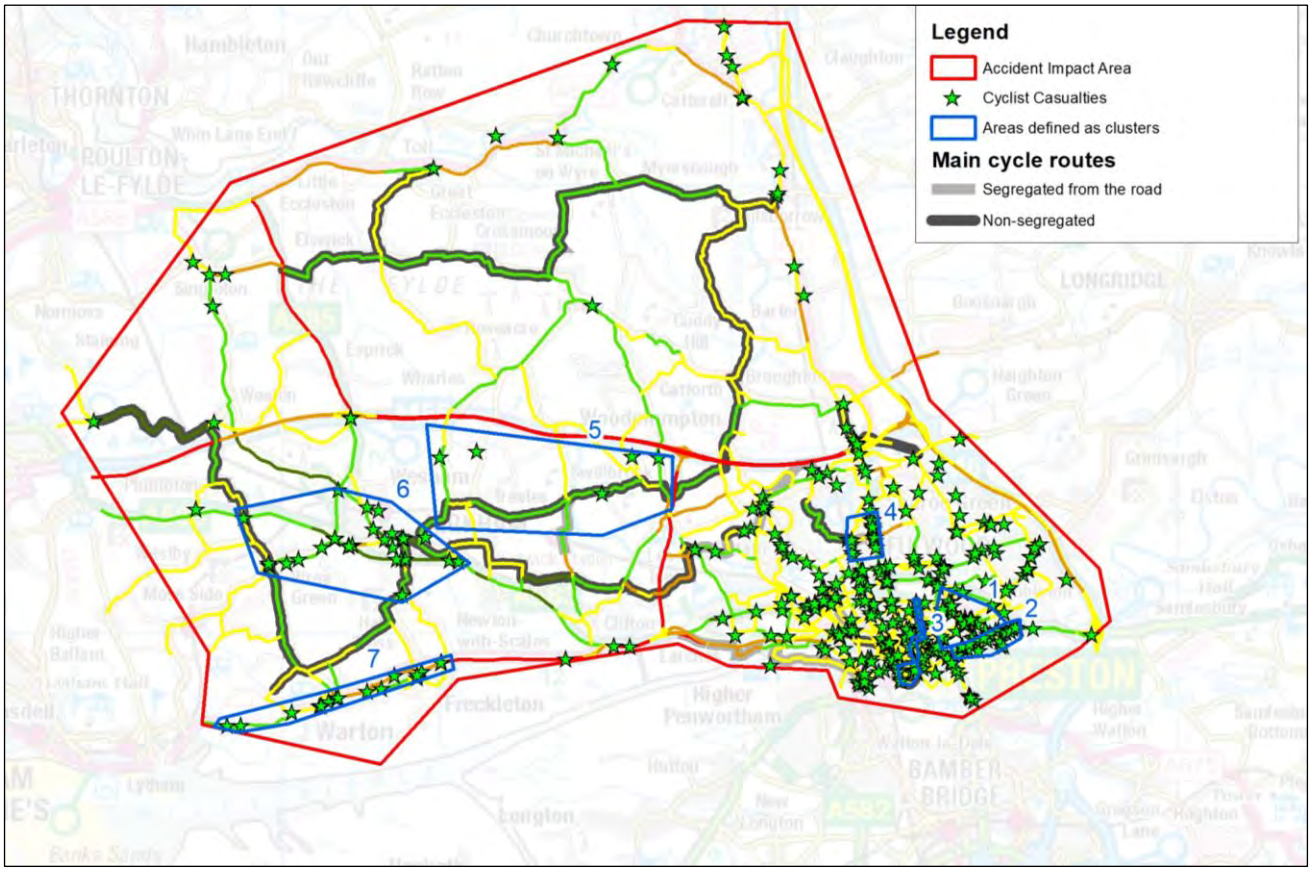

Figure 9-17: Cyclist casualties and main cycle routes within the Accident Impact Area

As demonstrated in Figure 9-17 there are five clusters within the area of impact where the proportion of casualties among cyclists is significantly higher than national average and are close to amenities for cyclists. Table 9-5 shows the proportions of casualties among cyclists and the impact of the scheme on road safety for each cluster.

Table 9-5: Clusters of cyclists that are casualties on the road and forecasted impact of the scheme

Area	Proportion of cyclist casualties	Impact of the scheme
National Average	9.8 %	**N/A, only for comparison purposes**
Average in Study Area	9.5 %	
Cyclists' Cluster 1	19.8 %	Neutral
Cyclists' Cluster 2	18.3 %	Beneficial
Cyclists' Cluster 3	18.0 %	Neutral
Cyclists' Cluster 4	21.1 %	Beneficial
Cyclists' Cluster 5	26.3 %	Beneficial
Cyclists' Cluster 6	15.8 %	Beneficial
Cyclists' Cluster 7	24.6 %	Neutral

Figure 9-18 shows that the majority of the links within the identified clusters are expected to have a reduction in accidents as a result of the scheme. Therefore, the PWD scheme impact is considered to be slightly beneficial for cyclists.

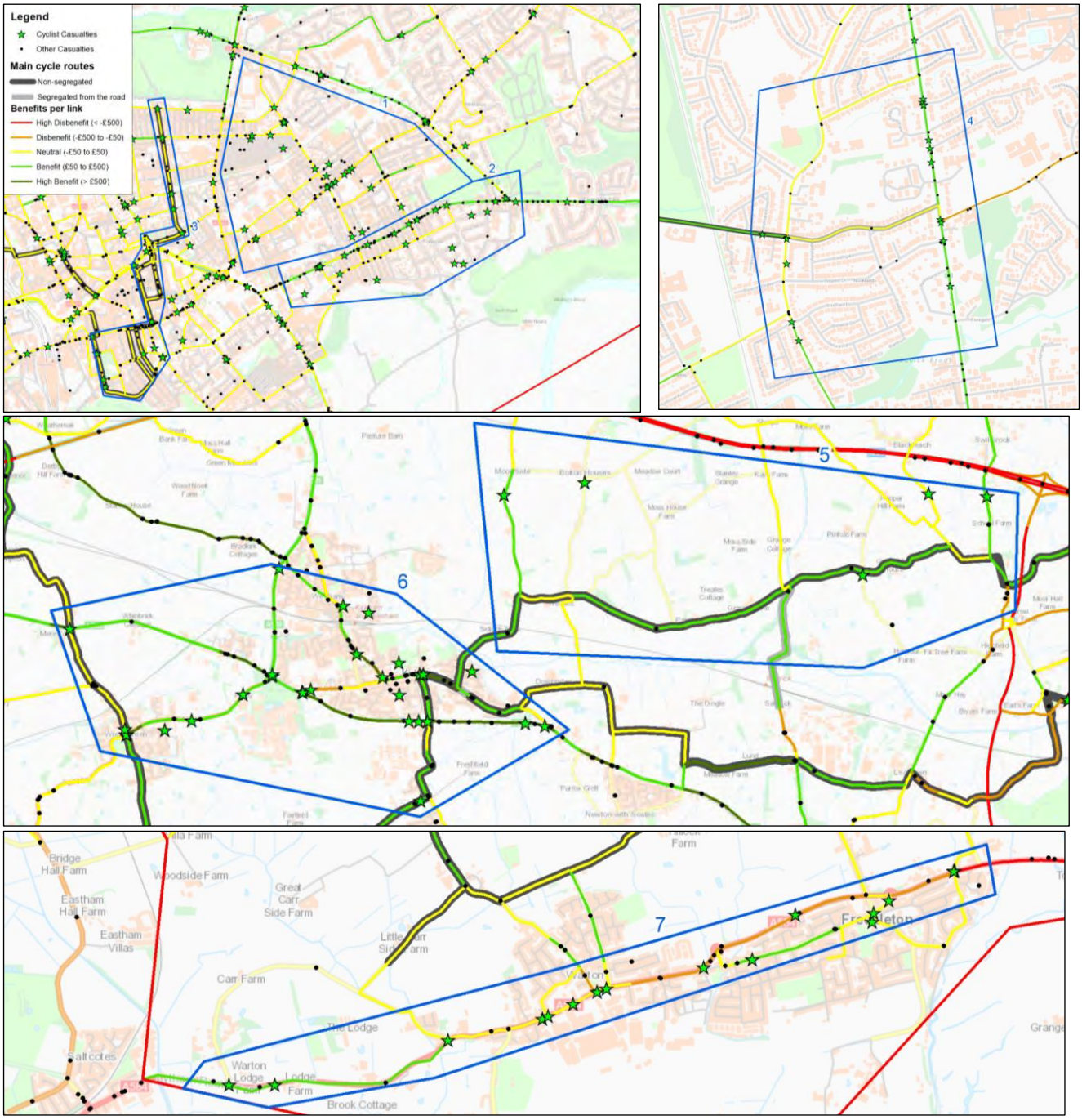

Figure 9-18: Cyclists casualties and main cycle routes in the identified clusters

9.5.6 Accident Impacts on Motorcyclists

Casualties among motorcyclists have been plotted in GIS (Figure 9-19):

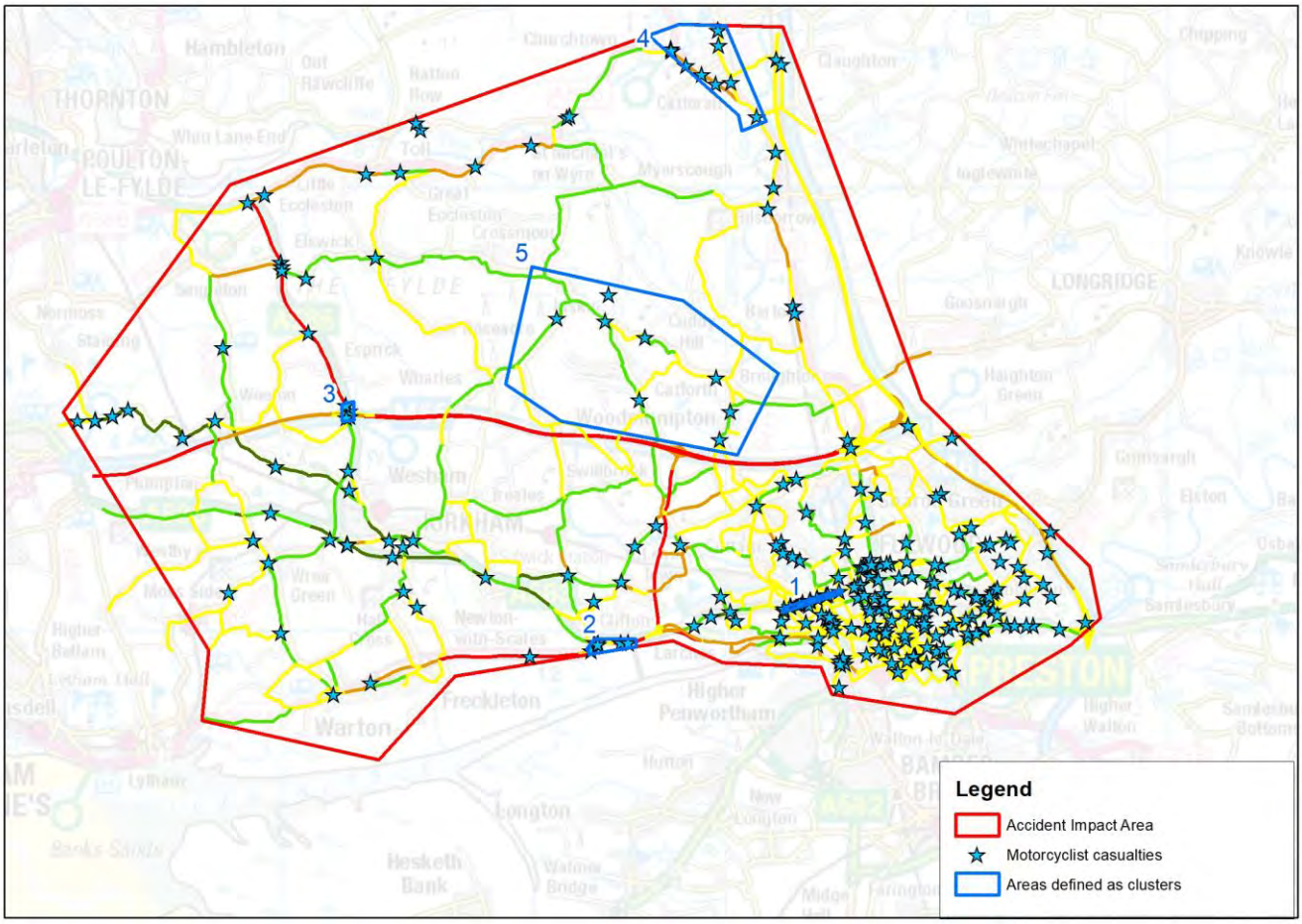

Figure 9-19: Motorcyclist casualties in the Accident Impact Area

As demonstrated in Figure 9-19 there are five clusters within the area of impact where the proportion of casualties among motorcyclists is significantly higher than national average. Table 9-6 shows the proportions of casualties among motorcyclists and the impact of the scheme on road safety for each cluster.

Table 9-6: Clusters of **motorcyclists'** that are casualties on the road and forecasted impact of the scheme

Area	Proportion of motorcyclists' casualties from overall casualties	Impact of the scheme
National Average	9.9 %	**N/A, only for comparison purposes**
Average in Study Area	6.8 %	
Motorcyclists' Cluster 1	18.1 %	Beneficial
Motorcyclists' Cluster 2	15.6 %	Adverse
Motorcyclists' Cluster 3	16.7 %	Adverse
Motorcyclists' Cluster 4	19.3 %	Adverse
Motorcyclists' Cluster 5	26.7 %	Beneficial

As demonstrated in Figure 9-20 there are both beneficial and adverse impacts on motorcyclists depending on the area. Thus, the overall impact is assessed as neutral.

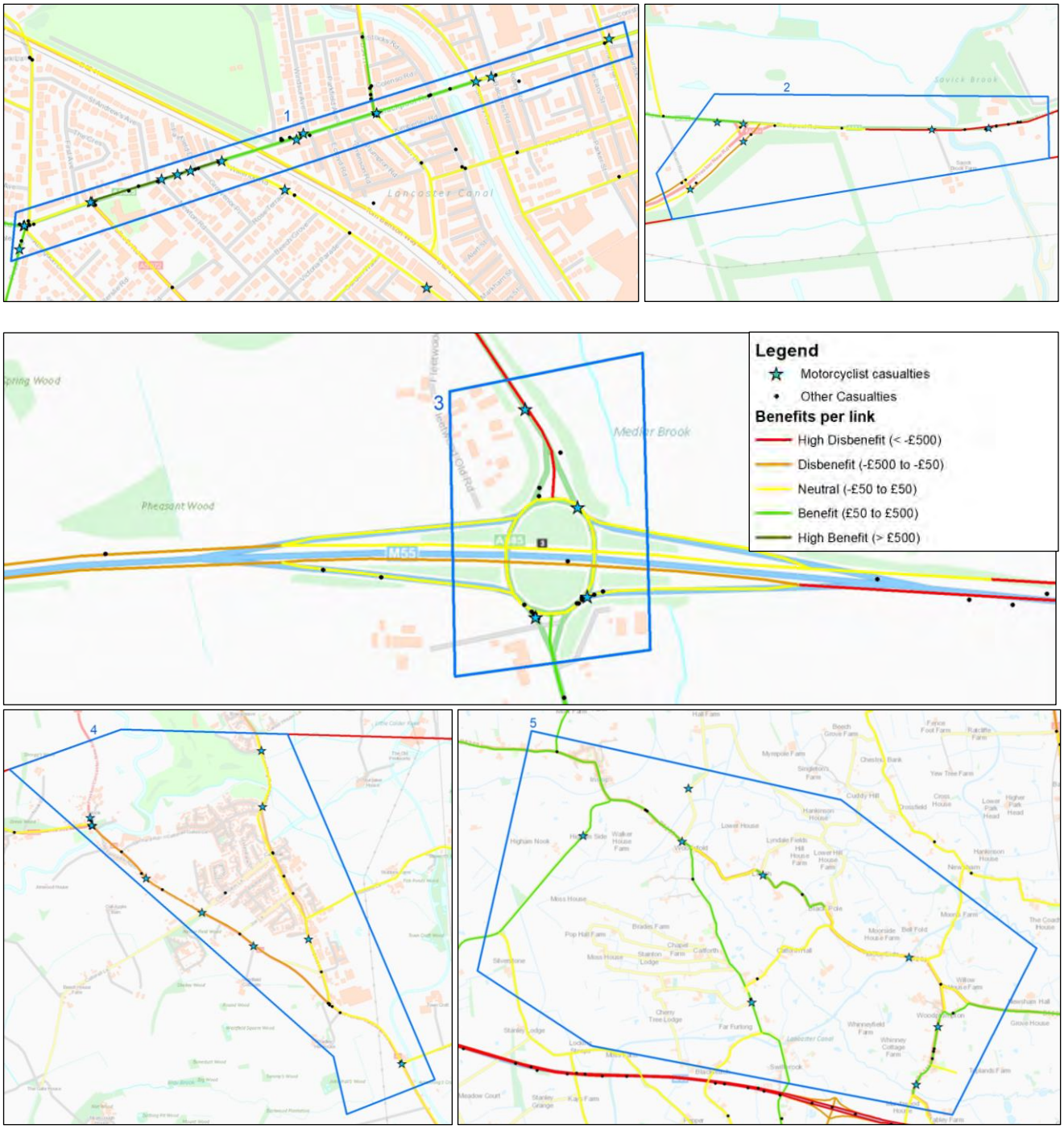

Figure 9-20: Motorcyclists casualties in Preston

9.5.7 Accident Impacts on Deprived Areas

Following TAG guidance, the analysis should consider if there is evidence of casualty rates in the deprived areas being higher than national average rates in order to undertake a qualitative assessment of impacts. Data about accidents rate per each link, but not casualties' rate, was available from the COBALT analysis and has been used for this purpose.

Links within COBA-LT analysis have been plotted in GIS comparing their current accident rate with national average accident rates, for the corresponding road type and speed limit as well as LSOAs within the most deprived quintile (Figure 9-21):

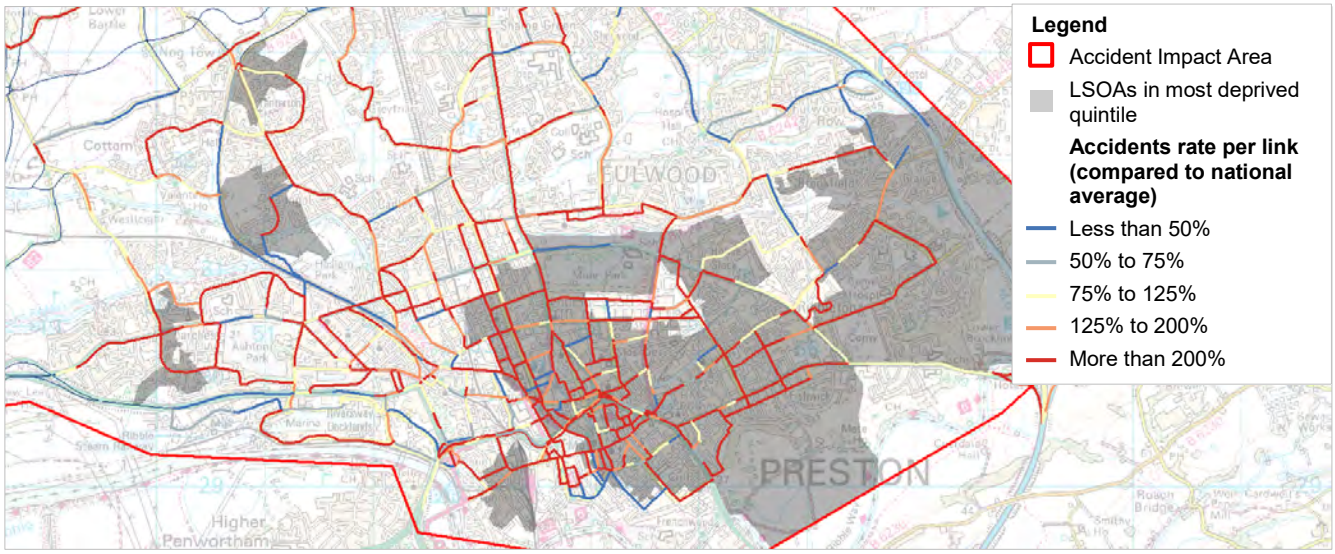

Figure 9-21: LSOAs in the most deprived quintile and ratio of accident rate in each street compared to national average

A majority of the links within LSOAs in the most deprived quintile have accident ratios significantly higher (>125%) than the national average that corresponds to that type of road, thus all the area corresponding to these LSOAs is considered to be assessed with a qualitative analysis, but giving less consideration to specific links where accident rates are below this ratio.

As demonstrated in Figure 9-22, casualties are not expected to experience significant changes due to the PWD scheme. Exceptions to this are the east side of A59 and A5085 Blackpool Road, which are expected to benefit from the scheme. However, these links are also an exception in the area in terms of accident rates, having similar or lower values than the national average.

Overall, areas corresponding to the LSOAs in the most deprived quintile that have accident rates higher than the national average are not expected to have a significantly beneficial or adverse impact of the scheme. Thus, the impact is assessed as neutral.

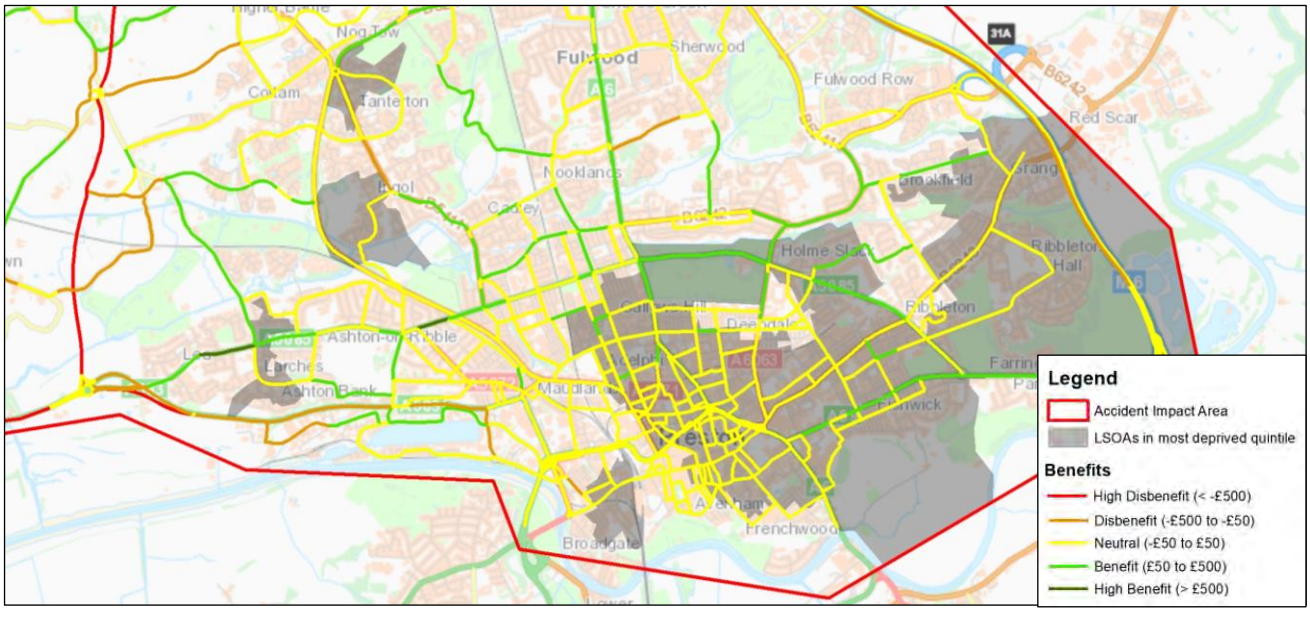

Figure 9-22: Casualties and LSOAs in the most deprived quintile in Preston

9.5.8 Summary of Accident Impacts Analysis

The results of the qualitative Distributional Impacts appraisal for the accidents indicator obtained in the former section are summarized in Table 9-7.

Table 9-7: Distributional Impacts appraisal results

	Vulnerable user group						LSOAs in most deprived quintile
	Children	Older People	Young Male Drivers	Pedestrians	Cyclists	Motorcyclists	
Assessment	Slight Beneficial ✓	Slight Beneficial ✓	Neutral	Slight Beneficial ✓	Slight Beneficial ✓	Neutral	Neutral

10. Full Appraisal of Distributional Impact and Input into AST

10.1 Introduction

The analysis undertaken in Chapters 5 to 9 provides an assessment score for each indicator and each social group under consideration. However, the full appraisal requires a qualitative assessment to be provided for each indicator to describe the key impacts in each case. These are summarised in a matrix in Table 10-1 overleaf. It provides detail of the 'winners' and 'losers' from the scheme and the key issues of relevance.

It also provides an overall assessment score for each indicator which should be recorded in the AST.

	Distributional impact of income deprivation					Are the impacts distributed evenly?	Key impacts – Qualitative statements
	0-20%	20-40%	40-60%	60-80%	80-100%		
User Benefits	✓	✓✓	✓✓	✓✓✓	✓✓	No	All income groups receive user benefits from the scheme. Quintile 4 benefits the most.
Noise	×××	✓	✓✓	✓	✓✓✓	No	Quintile 1 is the only quintile which receives adverse impact. All other quintiles receive beneficial score. Quintile 5 benefits the most.
Air Quality (NO2)	××	✓✓✓	×	✓✓	✓✓✓	No	Quintiles 1 and 3 are impacted negatively. All other quintiles received a positive impact with quintiles 2 and 5 benefitting the most.
Air Quality (PM10)	✓	✓✓	✓	✓✓✓	✓✓✓	No	All income groups receive positive impact. Quintiles 4 and 5 benefit the most.
Affordability	×	×	×××	×××	××	No	All quintiles receive a negative impact with regards to affordability. The impact is the largest for Quintiles 3 and 4.
Accessibility	N/A	N/A	N/A	N/A	N/A		

	AST entry										
	Social groups						User Groups				
Impact	Children and Young People	Older People	Carers	Women	Disabled	BME	Pedestrians	Cyclists	Motorcyclists	Young male drivers	Qualitative statement (including any impact on residential population and identified amenities)
Noise	✓	✓									There will be 10 schools that will see a reduction in noise and five schools which will experience an increase in noise. Overall score for children therefore is Slight Beneficial. Changes in levels of noise for hospitals are imperceptible. There are 5 of the 9 LSOAs with large numbers of elderly that will experience a decrease in noise, 4 LSOAs experience no impact. The score for older people is therefore Slight Beneficial.
Air Quality	Neutral	×									Out of 19 schools in the area of impact 9 will experience improvement in NO_2 air quality as a result of the scheme whilst 7 schools will be negatively impacted. PM_{10} levels are expected to worsen at just 1 school while levels are expected to improve at 5 schools. A neutral award has therefore been given There are 2 hospitals within the air quality impact area. Both are expected to experience worsening of NO_2 air quality, while PM_{10} . levels are expected to increase at one hospital while remaining the same at another. Therefore, Slight Adverse score has been awarded for Older People.
Accidents	✓	✓					✓	✓	Neutral	Neutral	Children, older people and NMUs are expected to benefit from the scheme due to forecast reduction in number of accidents along the routes with high proportion of accidents among those vulnerable groups.
Security	N/A	N/A		N/A							
Severance	N/A	N/A	N/A		N/A						
Accessibility	N/A	N/A	N/A	N/A	N/A	N/A					

Table 10-1: DI Appraisal Matrix

10.2 Conclusion

The PWD Scheme is expected to have an impact on the following DI indicators: User Benefits, Affordability, Accidents, Noise and Air Quality.

The results of the DI appraisal demonstrated that not all those impacts are distributed evenly among different social groups.

DI assessment for different income groups showed that all income quintiles will receive a positive impact for the User Benefits, although some income groups will experience more significant benefits than the others. For User Benefits income group 4 will receive a large positive impact, whilst income groups 2,3 and 5 will receive a moderate beneficial impact and income group 1 receives a slight beneficial score.

For Air Quality NO2, income group 1 receives a moderate adverse score and income group 3 receives slight adverse benefits from the scheme. Income groups 2 and 5 will receive a large beneficial impact and income group 4 will receive a moderate benefit. For Air Quality PM10 all income groups receive a positive impact but income groups 4 and 5 will benefit the most.

All income groups will receive a negative impact regarding personal affordability, with income groups 1 and 2 receiving a slight adverse score, income groups 3 and 4 scoring large adverse, and income group 5 gaining a large adverse score.

On the other hand, all income quintiles except income quintile 1, which receives a large adverse score will benefit from a decrease in noise levels with the scheme in place. Income group 5 receives a large beneficial impact, income groups 2 and 4 receive a slight beneficial score, and income group 3 receives moderate beneficial.

DI assessment for vulnerable groups showed that children, older people, pedestrians and cyclists will overall be positively affected by the scheme.

Children are expected to receive a slight beneficial effect from change in noise levels as well as from a reduction in accidents, while there is expected to be a neutral impact on air quality.

Older people, pedestrians and cyclists are expected to benefit from accident impact as there will be a reduction in numbers of casualties among representatives of these two groups when the scheme is in built. Older people are also expected to experience a reduction in noise resulting from the scheme. Yet they have scored slight adverse for air quality.

Appendix A. Screening Proforma

DI Screening Proforma

Scheme description: Preston Western Distributor (PWD)
The PWD scheme consists of a new 4.3km dual carriageway road to support delivery of the North West Preston strategic housing location, improve access to the strategic road network from the Enterprise Zone at Warton and relieve congestioin in central Preston.

Indicator	(a) Appraisal output criteria	(b) Potential impact (yes / no, positive/negative if known)	(c) Qualitative Comments	(d) Proceed to Step 2
User benefits	The TUBA user benefit analysis software or an equivalent process has been used in the appraisal; and/or the value of user benefits Transport Economic Efficiency (TEE) table is non-zero.	Yes, Positive and Negative	TUBA analysis of travel time and VOC benefits has been undertaken and showed significant User Benefits of the scheme	Yes
Noise	Any change in alignment of transport corridor or any links with significant changes (>25% or <-20%) in vehicle flow, speed or %HDV content. Also note comment in TAG Unit A3.	Yes, Positive and Negative	The PWD is a new off-line schme which changes the transport infrastructure in West of Presont and results in significant changes in traffic flow in and around Preston with some of the links having a flow change of more than 25%.	Yes
Air quality	Any change in alignment of transport corridor or any links with significant changes in vehicle flow, speed or %HDV content: • Change in 24 hour AADT of 1000 vehicles or more • Change in 24 hour AADT of HDV of 200 HDV vehicles or more • Change in daily average speed of 10kph or more • Change in peak hour speed of 20kph or more • Change in road alignment of 5m or more	Yes, Positive and Negative	The PWD is a new off-line scheme which changes the transport infrastructure in west of Presont resulting in significant changes in traffic flow in and around Preston There are multiple links with changes in AADT greater than 1000 vehicles.	Yes
Accidents	Any change in alignment of transport corridor (or road layout) that may have positive or negative safety impacts, or any links with significant changes in vehicle flow, speed, %HGV content or any significant change (>10%) in the number of pedestrians, cyclists or motorcyclists using road network.	Yes, Positive and Negative	The PWD is a new off-line scheme resulting in significant changes in traffic flow in and around Preston. COBALT analysis will be undertaken to calculate changes in number of accidents as a result of the scheme.	Yes
Security	Any change in public transport waiting/interchange facilities including pedestrian access expected to affect user perceptions of personal security.	No		No
Severance	Introduction or removal of barriers to pedestrian movement, either through changes to road crossing provision, or through introduction of new public transport or road corridors. Any areas with significant changes (>10%) in vehicle flow, speed, %HGV content.	Yes, Positive and Negative	The scheme will have a small impact on severance through introduction of new facilities for walking and cycling along the PWD, whilst also severing a small number of existing walking routes. These changes however are expected to effect a very small number of people and therefore to ensure a proportionate approach Severance has been screened out from the DI appraisal.	No
Accessibility	Changes in routings or timings of current public transport services, any changes to public transport provision, including routing, frequencies, waiting facilities (bus stops / rail stations) and rolling stock, or any indirect impacts on accessibility to services (e.g. demolition & re-location of a school).	No		No
Affordability	In cases where the following charges would occur; Parking charges (including where changes in the allocation of free or reduced fee spaces may occur); Car fuel and non-fuel operating costs (where, for example, rerouting or changes in journey speeds and congestion occur resulting in changes in costs); Road user charges (including discounts and exemptions for different groups of travellers); Public transport fare changes (where, for example premium fares are set on new or existing modes or where multi-modal discounted travel tickets become available due to new ticketing technologies); or Public transport concession availability (where, for example concession arrangements vary as a result of a move in service provision from bus to light rail or heavy rail, where such concession entitlement is not maintained by the local authority[1]).	Yes, Positive and Negative	According to TUBA results car fuel and non-fuel operating costs will vary with the scheme in place.	Yes

Appendix B. Distributional Impact of User Benefits per LSOA